

# PATENT SPECIFICATION

706.052



Date of Application and filing Complete Specification: Oct. 15, 1951.

No. 23994/51.

Application made in Finland on Oct. 24, 1950.

Complete Specification Published: March 24, 1954.

Index at acceptance:—Class 130, 1(2: 5).

## COMPLETE SPECIFICATION

### Method of Treating Tobacco and Apparatus therefor

We, OY HELVAR, a Finnish body corporate, of Pitäjänmäki, Helsinki, Finland, do hereby declare the invention, for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

The present invention relates to the treatment of tobacco.

- 10 Tobacco leaves contain nitrogenous and some other constituents which during the burning of the tobacco produce objectionable odour and taste. Processing or treatment of tobacco has for its object to remove these nitrogenous and other undesirable constituents and in prior practice comprised subjecting the tobacco to a biochemical fermentation process wherein enzymes and/or bacteria decompose the nitrogenous constituents to more simple compounds and then eventually to such products as ammonia and nitrates. This fermentation process has the drawback of being associated with lengthy treatment time varying from several months to even two years. Then, too, as in other fermentation processes, there is the danger that foreign bacteria mould fungi or the like will enter the process and impair the result.

- 20 It has now been surprisingly found that the smell and taste of tobacco can be improved by subjecting the tobacco to the action of a high frequency electric field, whereby the constituents producing the objectionable odour and taste are removed in a short period of time thus resulting in better quality tobacco.

- 25 To effect the instant treatment by one method the tobacco, in a closed container such as a chamber, tube or the like, is placed between the electrodes of a high frequency generator. Then the moisture content of the tobacco cannot, during the treatment period, escape to any noteworthy degree but will create in the container a pressure in excess of atmospheric. Then when steam, after treatment time of few minutes duration, is vented and/or allowed to evaporate from the spread out tobacco or to the air, it will be observed that the steam contains the gaseous, vaporous or volatile constituents of acrid smell produced during the treatment and which may be the reaction products of the nitrogenous and other objectionable constituents present in the tobacco leaves and which thus are permitted to escape from the tobacco at the end of the treatment. These reaction products may have been produced by the high frequency electric field together with increased temperature of the tobacco or solely by the heat reaction taking place from within the tobacco.

Excellent results have been obtained when the relative humidity of the tobacco at the outset of the treatment ranged approximately from 18% to 25%. The frequency of the high frequency field must be several megafrequencies per second, as is customary in all dielectric heat treatments. The input of high frequency is such that the temperature of the tobacco increases to about 100° C. or somewhat higher. Then the process will, as hereinabove mentioned, be effected in a few minutes. According to a modification of the instant treatment method the evaporation of steam and constituents contained therein is speeded up by means of a suitable aerating and cooling arrangement.

Should it be desired to economize on high frequency energy, the tobacco is pretreated by introducing steam thereto, in consequence of which the temperature of the tobacco increases and the requisite humidity is imparted thereto. Advantageously in this same connection sauce substances and/or chemicals may be added if necessary to obtain the quality desired each time.

Due to the nature of the method the treatment container should be made of a suitable non-conductor of electricity so that from the energy of high frequency alternating field an adequately great amount will be transferred to the tobacco itself. By way of example porcelain, earthen ware and glass are mentioned here as suitable non-conductors of electricity.

Tobacco treatment in a high frequency electric field may, according to the invention, be effected either periodically or continuously. Periodic treatment involves treatment of a

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batch at one time. Continuous treatment comprises the steps of introducing the tobacco by employing suitable transport means such as an endless belt, worm or the like into a tube or tunnel having the electrodes of one or more high frequency generators arranged at a suitable point along the length thereof and passing the tobacco therethrough. The feeding speed of the transport means must be adjusted separately each time depending on the particular kind of tobacco being treated and its growing history so that each kind may remain between the electrodes the period of time respectively required. Preliminary experiments are necessary to determine the required high frequency input and the amount of tobacco to be treated per time unit.

By means of the method hereinabove described it is possible to process the tobacco in a few minutes so that it corresponds in quality to the highest quality tobaccos obtainable by the fermentation method. As a matter of fact, the method described is equivalent to the three prior known tobacco treatment methods together, namely, fermentation, ageing and roasting. Also the keeping qualities of the tobacco improve as the mould fungi and bacteria present in the tobacco and deleterious thereto are destroyed.

What we claim is:—

1. Method of treating tobacco by subjecting the same to the action of a high frequency electric field, characterized in that the treatment is effected by either placing the tobacco in a closed container such as a chamber, tube or

the like between the electrodes of a high frequency generator or passing the tobacco by means of a suitable transport device continuously through between the electrodes, this treatment being carried out in such a way that the temperature of the tobacco rises up to about 100° C. or somewhat higher and the treatment takes only a few minutes whilst gaseous, vaporous or volatile constituents produced during the treatment are permitted to escape at the end of the treatment.

2. Method as in claim 1, characterized in that the humidity of the tobacco at the outset of the treatment is about 18% to 25%.

3. Method as in claim 1 or 2, characterized in that the tobacco is pretreated by introducing thereto steam prior to subjecting it to the action of the high frequency electric field.

4. Method as in any of the claims 1 to 3, characterized in that to the tobacco are added sauce substances and/or chemicals in connection with the high frequency treatment.

5. Apparatus adapted to carry out the method as in any of the foregoing claims, comprising a container, tube or tunnel made of a non-conductor of electricity such as porcelain, earthen ware, glass or the like.

6. Methods of treating tobacco substantially as hereinbefore described.

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Leamington Spa: Printed for Her Majesty's Stationery Office, by the Courier Press.—1954.  
Published at The Patent Office, 25, Southampton Buildings, London, W.C.2. from which  
copies may be obtained.